

REMARKS

This application contains claims 1-23. Claims 1, 12 and 23 are hereby amended. No new matter has been added. Reconsideration is respectfully requested.

Claims 1-10, 12-21 and 23 were rejected under 35 U.S.C. 102(b) over Edgar et al. (U.S. Patent 5,537,530). Applicant has amended independent claims 1, 12 and 23 in order to clarify the distinction of the present invention over the cited art.

Edgar describes a method for video editing by locating segment boundaries and reordering segment sequences. A computerized process analyzes digitized video source material and identifies boundaries of segments or scene changes (col. 4, lines 13-17). Once the system has determined all relevant scene changes, it attempts to find the most representative image from each scene sequence to represent that sequence (col. 12, lines 1-13, which is the only description by Edgar of how and when the representative frames are chosen by the computer). The representative frames are then displayed, permitting a user to perform video editing by manipulating these representative frames, each associated with a different scene or video sequence (col. 3, lines 34-46).

One function that the user may perform using this display is to consolidate selected representative frames (“stills”) in order to put together a “meaningful collection of video from the user’s perspective, which was not necessarily sequential as originally created...” (col. 4, lines 51-57). In other words, the user selects multiple representative frames from the computer-generated display (as shown by Edgar in Fig. 2) in order to consolidate the segments that these frames represent into a single “scene.” The user may then choose one of the multiple representative frames to represent the consolidated scene (col. 4, line 62 – col. 5, line 5).

Claim 1 recites a method for organizing a sequence of video frames to define a segment, which is represented by a selected, representative frame. The claim has been amended to clarify that the method is implemented by computer. Starting from an initial frame, a first portion of the segment is defined by adding subsequent frames to the segment. The computer determines a measure of similarity between the frames in the sequence, and continues adding frames to this first portion while the measure remains within a predefined bound. One of the frames in the first portion is chosen to be the representative frame for the entire segment.

Using this representative frame, the computer then goes on to add further frames to make up a second portion of the segment. The claim has been amended to clarify that this step of the method is performed automatically, under control of computer program instructions and without intervention by a user. For this purpose, the computer determines a similarity measure between the representative frame and the further frames in the sequence (following the last frame in the first portion). The computer continues to add frames to the second portion of the segment while the similarity measure between the further frames and the representative frame remains within a predefined bound. The segment that is represented by the representative frame is made up of the first and second portions together.

Thus, in the method of claim 1, the representative frame for each segment is chosen midway through the assembly of the segment, and is then used by the computer, automatically, in deciding when to end the segment. This approach is advantageous in that it provides representative frames that represent the content of a video sequence more faithfully than do methods known in the art. It also permits segments to be made as large as possible, thus representing video sequences more efficiently (see specification, page 4, line 18 – page 5, line 2). The method is entirely automated.

Edgar, by contrast, is directed toward facilitating interactive editing of video sequences by a user. The automated phase of Edgar's method, as noted above, ends with finding representative images to display after the computer has determined all the relevant scene changes (col. 12, lines 1-13), i.e., after the segment boundaries have already been determined. Edgar neither teaches nor suggests that after selecting a representative frame for a given segment, the computer might use this frame in order to add further frames to the segment, i.e., in determining where to place the segment boundaries. Thus, claim 1 as amended is believed to be novel over Edgar.

Furthermore, although Edgar describes a scenario in which a user may combine scenes using the representative frames, this operation is necessarily performed by the user, based on the user's subjective perception of a relationship between the scenes (col. 4, lines 55-57, as quoted above). This scene consolidation is not connected to any sort of computer-generated "signature" (as described by Edgar subsequently) or to other objective similarity measure. Edgar makes no suggestion that could have led a person of ordinary skill to implement this subjective step

automatically, under control of program instructions. Therefore, even if there were a coincidental, semantic similarity between the words of claim 1 as filed and Edgar's method of editing, there is no disclosure by Edgar that could lead to a finding that claim 1, as amended, is obvious.

Thus, Applicant respectfully submits that claim 1, as amended, is patentable over the cited art. In view of the patentability of claim 1, claims 2-10, which depend from claim 1, are believed to be patentable, as well. Although Applicant believes that the dependent claims recite subject matter that is independently patentable, the patentability of the dependent claims will not be argued here for the sake of brevity.

Claim 12 recites apparatus for organizing a sequence of video frames, while claim 23 recites a computer software product, both of which operate on principles similar to the method recited in claim 1. These claims were rejected on grounds similar to the grounds of rejection cited against claim 1, and have both been amended in a manner similar to the amendment of claim 1 discussed above. Therefore, Applicant respectfully submits that amended claims 12 and 23 are patentable over the cited art, as are claims 13-21, which depend from claim 12.

Claims 11 and 22 were rejected under 35 U.S.C. 103(a) over Edgar. In view of the patentability of independent claims 1 and 12, from which these claims depend, claims 11 and 22 are believed to be patentable, as well.

Applicant has studied the additional prior art references made of record by the Examiner, and believes the claims in the present patent application to be patentable over these references, whether the references are taken individually or in any combination.

Applicant believes the amendments and remarks stated above to be fully responsive to all of the objections and grounds of rejection raised by the Examiner.

In view of these amendments and remarks, all the claims in the present patent application are believed to be in condition for allowance. Prompt notice to this effect is requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "S. Peter Ludwig", is written over a horizontal line.

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